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ABSTRACT

The author discusses the use of evaluation for purposes of instruction and improvement of learning in the general physical education program. Contrasted with the traditional use of evaluation for grading and classifying students, it is suggested that evaluation be integrated into a cycle of activity involving behavioral objectives, measurement, and both formative and summative evaluation. The cycle should involve the following: (1) behavioral objectives should be defined clearly; (2) teaching methods should be related to present status--readiness of learners at given skill level; (3) level of mastery or standard of minimum acceptable performance should be agreed upon; (4) formative evaluation should occur at each level of performance in order to provide continuous feedback to students; and, finally, (5) summative evaluation should be conducted to test the achievement of the learner and to evaluate the effectiveness of teaching methods. (MJB)

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EVALUATION: Improving Learner Performance

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Education in America has undergone many changes over the years, especially in areas of curriculum and methodology. However, the purpose of education has remained rather constant and revolves around the general theme of a set of learning tasks in which an individual presumably proceeds from the less difficult to more difficult throughout formal schooling. A pyramid effect, with all or most of the younger age group attending school at the bottom and very few reaching the apex is a common system of education which may be perpetuated by a system of grading and classifying students. (5:7) This single use of evaluation is utilized in many schools today and probably contributes very little to the improvement of learning and teaching of skills in the psychomotor domain.

I would like to have you share a different experience and perhaps a new approach to evaluation in the next few minutes--an approach that could be a useful means of improving performance in the general physical education program. Put aside, if you can, those thoughts of evaluation for grading (A, B, C, D, and F and a system that rewards the gifted, avenges the average, and sometimes punishes the slow learner).

Evaluation has numerous purposes, but one of the most vital and worthwhile is often neglected--that of evaluation for the purpose of instruction and improvement of learning. This will be the theme of my presentation today.

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We are in the "business" of producing change in behavior of the learners that we work with each day. We are also involved in measuring and evaluating that change in an attempt to describe, appraise and analyze the process and outcome. Our thinking brings us to a definition of EVALUATION by Bloom, " . . . systematic collection of evidence to determine whether in fact certain changes are taking place in the learners as well as to determine the amount or degree of change in individual students." (5:8) When we view the role of evaluation in an integrated role of instruction and assessment, we as teachers must formulate specific and desirable behavioral objectives for the learner to attain. These objectives, when related to desired behavior or change in student behavior, must be defined in such a way that each can be measured. Many individualized programs of instruction are designed to elicit certain outcomes from students which are easily measured and quantified.

I realize that not all educators share the belief that behavioral objectives are an important part of the educational process.

Specific behavioral objectives can be written for most expected behavior of the students we have in general physical education classes. Elements necessary for planning and writing a good objective are well described and perhaps familiar to you from Kibler and Mager. (8:9) First, as a teacher you must be able to describe completely and clearly the desirable behavior or identify the action the student should perform. For example, to execute a short serve in badminton, to run in a forward direction.

Second, set the conditions under which the behavior is expected to produce desirable results. (Short serve-"from service court across the net into opposite service court landing in bounds"). Third, decide what standard will be used for evaluation of the success of the task-performance.

Once the objectives have been set for a specific subject matter of physical education activity, the teacher should constantly become aware of revisions that are necessary for improved performance and learning of the skills involved.

If we use evaluation to improve performance and approach to instruction through behavioral objectives, we also should consider the strategies of learning for mastery. The teacher should decide whether ALL students must achieve the minimum acceptable standard or whether they could just as well achieve varying levels of mastery of an objective--above a set minimum standard. The learning process generally described is one in which the learner moves from one level of phase of learning to another toward mastery of skills at each level. In the general physical education program, there may be no constraints on how many students achieve a certain level of performance.

If a teacher assumes that students can master 90% of what we have to teach them, then the task of instruction appears to be one of finding ways to assist the students to learn the skill in the most accommodating and efficient manner. Bloom, Gronlund, and Block (4, 6, 3) refer to this approach as LEARNING FOR MASTERY. Mastery learning is an individualized approach to learning and can be applied to physical education in the psychomotor domain very easily. The concept of mastery learning is closely related to FORMATIVE EVALUATION which I shall discuss and make a direction application to later on.

In taking a look at mastery learning strategies, we would want to consider the following:

1. Break the course (sport) down into units (Components) of instruction.
2. Define what the students will be expected to learn and at what

level (behavioral objectives and levels)

3. Provide learning tasks that will enable them to master the skill as soon as possible

4. Administer formative tests at end of each unit which are indicative of learning outcomes specified in the objectives.

5. Use formative tests to evaluate the progress of learner and of the quality of instruction.

6. Administer an end-of-course (learning units) SUMMATIVE TEST to all students. This test should contain a sample of the content relevant in the formative tests. At this point in the course a letter grade could be assigned.

These strategies are repeatable in a cycle which can assist in the improvement of learner performance and in turn when objectives are revised accordingly the quality of teaching and instruction is improved. Throughout the cycle evaluation and testing of the change in learner performance must be continuous.

The structure of the learning process can be broken into components (skills in psychomotor domain) of a learning unit which can be defined and measured (formative evaluation). I mentioned before that the concept of mastery learning is closely related to formative evaluation.

FORMATIVE evaluation is any continual assessment and evaluation that is purposeful during the learning of skills and which provides immediate feedback to ALL students. The mastery or non-mastery of an objective at any level should provide sufficient feedback concerning the student's ability to achieve the skill. The purpose is ~~not to~~ GRADE the student at the end of each unit but to determine their progress along the way. Likewise, the teacher may become more aware of the good and the faulty methods

of instruction. If the majority of the class makes errors, the teacher should probably change instructional materials or process. If only a few students are having difficulty mastering the tasks, individual students could work independently to overcome the errors.

Formative evaluation objectives are written as behavioral objectives. This slide will describe and illustrate an application to the skills related to a badminton unit of learning:

EVALUATION OBJECTIVES FOR BEGINNING BADMINTON

FORMATIVE EVALUATION OBJECTIVES:

Short Serve

- Level 1. The student will successfully execute 7 of 10 short serves which pass over the net, and land within the boundaries of the opposite singles court.
- Level 2. The student will successfully serve 7 of 10 serves which pass over the net and land in each designated area of the service court.
- Level 3. The student will successfully serve 7 of 10 serves which pass between the net and a rope placed one foot above the net and land in a designated area of the opposite service court.

SUMMATIVE EVALUATION:

Given 10 trials, the student will execute the short serve which will pass between the net and a rope stretched one foot above the net and land in a designated area of the opposite service court. The student will try to score a maximum number of points.

Prior to writing specific objectives the teacher must decide and outline the content or skills necessary for game play just as you might do in a traditional teaching fashion. In a badminton unit for the general physical education program you would include: serves, clears, drives, smash, drop or net shots, rules, etc. The example you see here describes one component the short serve, and three levels for mastery. Each one becomes more complex as we proceed from low level to high level of skill.

You could use a check off system YES OR NO, mastery or non-mastery, or a point system, for success at each level. Good record keeping will allow you to monitor the performance of your students along the way and allow each to progress at their own pace. Where students are unsuccessful, various additional learning techniques can be prescribed such as viewing films, individual assistance, more practice time.

Following each skill unit (all levels of a single skill) the teacher may wish to give a formative test which is criterion-referenced for the purpose of determining progress toward the total learning unit. Criterion-referenced measurement is directly related to mastery teaching and formative evaluation tests because it describes student performance in terms of specific learning outcomes. The tests are designed by the teacher specifically for the objective of the unit in absolute terms. Criterion-referenced measurement is not concerned with relative performance of the group. Recall, if you will, that norm-referenced tests are based on a wide range of test items in which attempts have been made to maximize the difference in performance scores. Items that all students can answer might be discarded.

SUMMATIVE evaluation also plays an important role in the learning process. This type of evaluation usually occurs following the end of a unit of learning. Final assessment may include a test which is a valid measure of the student's ability to perform a particular skill. The summative test could be a sample of all the formative tests used during the unit. The teacher may use the scores for determining grades, passing the student for subsequent courses (from beginning to advanced), to compare results with past students' performance scores and thus determine what changes might be necessary for future course offerings.

SUMMARY

The goal of both evaluation and physical education program is to produce a change in behavior which should result in learning. OBJECTIVES of a unit of instruction specify WHAT is to be achieved; evaluation determines whether objectives have been reached. The inter-relationship between behavioral objectives, measurement and evaluation appears obvious. If the educational process is to be most effective, I believe that a cycle of activity could be developed for our physical education classes, formative in nature, with mastery of skill levels for all, and abundant with testing and evaluation of specific objectives.

To reiterate briefly, (1) behavioral objectives should be defined clearly, (2) teaching methods should be related to present status - readiness of learners at given skill level, (3) level of mastery or standard of minimum acceptable performance should be agreed upon, (4) formative evaluation should occur at each level of performance in order to provide continuous feedback to students and, finally, (6) summative evaluation should be conducted to test the achievement of the learner and to evaluate the effectiveness of teaching methods.

January 20, 1978

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